

RESEARCH DESIGN

Although no prehistoric sites have been reported within 5000 feet of the project area, and none in the upper reaches of Middle Run, it is located very near the border between those regions denoted as having high and medium known site densities within the management plan for Delaware's prehistoric cultural resources (Custer 1986: Figure 37). At a more detailed level (Custer and DeSantis 1986: Figure 24), the project area is located in Zone II, an area of "Medium to Low Significance Site Probability, Medium Site Data Quality."

Numerous sites have been identified on the High Coastal Plain within the drainage basin of White Clay Creek. These sites range from small stations to base camps. However, the existing data base reflects a lack of identified sites in the Piedmont Uplands. Based on existing models of prehistoric settlement (Custer 1984, 1986, 1989; Custer and DeSantis 1986), sites in this physiographic province are expected to comprise resource procurement locations containing small assemblages of artifacts that suggest a restricted range of activities. Such sites are expected to only exhibit residues from extractive forays into this physiographic province.

Potential resources available for exploitation within this habitat setting include hardwoods for tools and weapons and mast which would also serve to attract game species such as deer and turkey. The presence of a stream confluence within the project location and a larger confluence just to the south of the project area suggests that this setting may have been attractive for Native American exploitation.

The project area lies within three miles of the Delaware Chalcedony Complex, a cryptocrystalline lithic resource site used throughout prehistoric times, but particularly noteworthy during the Paleo-Indian period. Utilizing the settlement models devised for the Paleo-Indian study unit, the project area would appear suitable for a quarry-related base camp during this period. This hypothesis was based on the project's location at a stream confluence with a southern exposure and the accessibility to upland resources as well as those in the floodplain of White Clay Creek. Archaic period settlement models for the Piedmont Uplands suggested that the project area may have been the location of a procurement site or even possibly a micro-band base camp, with similar site types possible during the Woodland I period. During the Woodland II period a procurement site seems most likely, as the locale's proximity to the White Clay Creek Valley and the valley's obvious attractiveness for prehistoric settlement might have obviated the need for a micro-band camp at this location (Custer 1986).

Another avenue of investigation involved examining the suitability of soils within the project area for prehistoric habitation. Research revealed that the project area is situated on soils that are mapped as poorly drained (Matthews and Lavoie 1970). A cursory review of soils associated with prehistoric sites within this portion of New Castle County disclosed that all sites registered with soil classifications are located on well drained soils.

Based on this information, the project area was judged to have a low probability of containing prehistoric cultural resources. However, on a previous visit to the location, DelDOT Archaeologist, Kevin Cunningham (1993: Personal communication), reported finding a flake in the bank of Middle Run, west of Possum Park Road. He could not determine, though, whether the flake was *in situ* or had been transported from elsewhere by alluvial or colluvial action.

According to the *Management Plan for Delaware's Historical Archaeological Resources* (De Cunzo and Catts 1990: 192), the primary objective of reconnaissance level surveys is to identify all of the archaeological resources within a project area. Initially, research into the potential for historic period archaeological resources focused on historic maps and recorded sites. Unfortunately, the plan segregates first along temporal domains; the absence of mapped resources within the project area for the 17th through 19th centuries impedes application. The lack of any known or suspected primary or secondary historical resources within the project area required an appropriate investigative strategy. Therefore, the research design employed was designed to identify historical resources of any nature.

The possibility existed that historic period remains associated with either the Roseville Mill site, situated on Middle Run, or the agricultural complex located along Old Possum Park Road (N10076) may be present within the project area. Such remains were anticipated to comprise deposits or scatters of historic refuse.